

REMARKS

Claims 1-4 are pending in this application. A new Abstract is submitted. New Figures 1-3 are submitted. The Specification is amended. Claims 1, 3 and 4 are amended. Claims 5-11 are added. Favorable reconsideration and allowance of the present patent application are respectfully requested. This amendment, in conjunction with the following remarks, is believed to place the application in immediate condition for allowance. Applicants respectfully request that the Examiner reconsider the above-captioned patent application and claims in view of the foregoing amendments and following remarks.

While claims 1, 3 and 4 have been amended, Applicants do not concede that the Office Action's statutory rejections are proper. The amendments are understood to not narrow the scope of the claimed embodiments, nor have they been made for reasons related to patentability. Rather, the amendments have been to clarify the claimed embodiments. Thus, as future construction or interpretation, the amended claims should be entitled to a full range of equivalence.

Objections

The Abstract, Specification and claim 1 stand objected to for certain informalities. Applicants submit a new Abstract, and amends the Specification and claim 1 to correct the informalities. Thus, these objections are rendered moot and Applicants respectfully request that the Examiner withdraw the objections.

Drawings

The Office Action objects to the drawings under 37 CFR 1.83(a). Applicants submit a replacement Figure 2. Thus, the objection is rendered moot, and Applicants respectfully request that the Examiner withdraw the objection to the drawings.

Rejections

Claim 4 stands rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter that is not described in the specification as to enable one skilled in the art. Claim 3 stands rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) as allegedly rendered obvious by US Patent No.

4,449,247 (Waschka, Jr.). Claim 4 stands rejected under 35 U.S.C. § 103(a) as allegedly rendered obvious by Waschka, Jr., in view of U.S. Patent No. 6,351,322 (Ransford et al.). Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) as allegedly rendered obvious by U.S. Patent No. 6,229,631 (Sato et al.). Claim 4 stands rejected under 35 U.S.C. § 103(a) as allegedly rendered obvious by Sato in view of Waschka, Jr., in further in view of Ransford. Applicants respectfully traverse each of these rejections in view of the foregoing amendments and following remarks.

Claims 3 and 4 Meet The Requirements Of 35 U.S.C. § 112

Claim 4 is rejected as allegedly containing subject matter that is not described in the specification. Claim 3 is rejected as allegedly being indefinite. Applicants disagree.

Claim 4 recites monitoring a bit interleave parity for the bit parity check on each electrical signal in the N optical transmitter/receiver pairs. Embodiments of the present invention convert electrical signals into optical signals using a transmitter, and then converts the optical signals back into electrical signals using a receiver for each transmitter/receiver pair. The bit interleave parity check is performed on the electrical signals at each transmitter and receiver to identify the transmitter/receiver pair having a faulty component. Thus, claim 4

does describe subject matter in the specification that enables one skilled in the art to achieve Applicants' invention.

Claim 3 recites monitoring the signal quality includes a bit parity check that is independent of the bit error rate test signal. The claimed embodiments pertain to using a bit error rate test signal in a continuous cascade of a plurality of transmitter/receiver pairs. Each pair is electrically connected to continuously transmit the pseudo-random bits for the bit error rate test signal. After detecting an error in the bit error rate test signal, a bit parity check is performed on the transmitter/receiver pairs to determine which one is faulty. The bit parity check is performed independently of the testing of the bit error rate signal. Thus, claim 3 is not indefinite.

In order to further prosecution, however, claims 3 and 4 are amended to clarify embodiments of the Applicants' invention. Thus, Applicants respectfully request that the Examiner withdraw the rejections to claim 3 and 4 under 35 U.S.C. § 112.

Claims 1, 2 and 4 Are Not Rendered Obvious by the Cited Patents

Claims 1 and 2 are rejected as allegedly rendered obvious by Waschka, Jr. Waschka, Jr., relates to a local orderwire facility for fiber optic communication system. Waschka, Jr., describes a digital message transmission scheme for fault/alarm reporting

automatically without the need for site polling, testing the bit error rate of individual channels of the repeater and the transceiver equipment at each terminal stationed requested. Waschka, Jr., also describes that, as shown in Figure 7, if an unacceptable bit error rate is detected, the bit error rate test logic of each respective station can be selectively addressed to isolate the location of the cause of the bit error rate degradation. The operator selectively interrogates the data/voice control units in the stations along the link. An alarm interrogation unit is used in order to cause the bit error rate test logic of the addressed station to provide a bit error rate indication on the basis of the test sequence.

The location of the fault may be isolated by sequential testing of the stations along the channel. Thus, the bit error detector and the bit error rate module informs the operator that somewhere along the link there is a faulty unit. The interrogation response scenario uses each unit's data/voice control unit data permits observation of the throughput of that particular station and thereby identifies of a faulty module or unit along the link.

Applicants maintain that the Office Action does not establish obviousness with respect to claims 1 and 2. To establish obviousness, the Office Action must meet three basic criteria. First, there must be some suggestion or motivation, either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claimed limitations. MPEP 2143.

As discussed above, the cited references must disclose or suggest all the limitations of the claimed embodiments. Specifically, Waschka, Jr., does not disclose or suggest cascading the N optical communication channels so as to form a continuous cascade of optical transmitter/receiver pairs. Waschka, Jr., recites that the BER test sequence will be transmitted over the west-to-east optical link of the channel of interest, looped at terminal station 12 and transmitted back over the east-to-west optical link. Column 19, lines 25-28. This loop does not disclose a continuous cascade of optical transmitter/receiver pairs.

According to Waschka, Jr., there is one loop between terminal station 10 and terminal station 12. In contrast, the claimed embodiments disclose a plurality of transmitter/receiver pairs that are cascaded to receive the bit error rate test signal. Thus, for at least these reasons, the cited patent does not disclose or suggest all the features of the claimed embodiments.

In addition, Waschka, Jr., does not disclose or suggest other claim limitations of Applicants' claimed embodiments.

Specifically, Waschka, Jr., does not disclose monitoring a signal quality for the bit error rate test signal at each of the N optical transmitters and the N optical receivers when the measured bit error rate is greater than the predetermined system bit error rate threshold, as recited in claim 1. Waschka, Jr., describes an operator selectively interrogating data/voice control units in stations in along a link. Column 19, lines 34-37.

Waschka, Jr., also does not disclose or suggest monitoring each transmitter/receiver pair to determine which is greater/less than a specified bit error rate value. Further, the operator selectively interrogates the control units, whereas claim 1 recites monitoring the signal quality for the bit error rate test signal at each transmitter and receiver. Thus, Applicants maintain that Waschka, Jr., does not disclose or suggest these claimed limitations. Therefore, for at least these reasons, Applicants respectfully request that the obviousness rejections to claims 1 and 2 be withdrawn.

The Office Action also concedes that Waschka, Jr., does not describe comparing the measured bit rate error rate with a predetermined system bit error rate threshold, or indicating that the bit error rate for each of the end optical communications channels is less than a specified bit error rate value when the measured bit error rate is less than or equal to the predetermined

system bit error rate threshold. The Office Action, however, alleges that it would be "inherent to compare the measured system BER with a predetermined system BER threshold." Page 6, line 6. The Office Action also alleges that "[i]f the BER of each of the communication channels is less than the predetermined system bit error rate threshold, it is inherent that the system BER would be less than that same threshold." Applicants disagree.

The fact that a certain result or characteristic may be present in the prior art is not sufficient to establish the inherency or the result of characteristic. MPEP 2112. In relying upon the theory of inherency, the Office Action must provide a basis in fact or technical reasoning to reasonably support that the determination that the alleged inherit characteristic necessarily flows from the teachings of the applied patent. MPEP 2112. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

The Office Action provides no facts or support to show that measuring a system bit error rate with a predetermined system bit error rate threshold necessarily flows from detecting an acceptable system bit error rate. Waschka, Jr., merely recites detecting an unacceptable bit error rate. Column 19, lines 28-32. Waschka, Jr., does not disclose or suggest using a predetermined system bit

error rate threshold in determining what is or is not an unacceptable bit error rate. The mere fact that using a predetermined bit error rate threshold may result in detecting an unacceptable bit error rate is not sufficient for inherency. Thus, Applicants maintain that these features are not disclosed or suggested by Waschka, Jr. and that the obviousness rejections to claims 1 and 2 be withdrawn.

Claims 1 and 2 are rejected as allegedly rendered obvious by Sato in view of Waschka, Jr. Sato relates to a signal transmission system and method for supervising. Sato monitors predetermined estimation parameters in devices to estimate a bit-error rate. Column 2, lines 41-43. The estimation parameters are controlled to obtain the maximum system margin. A simulator 15 uses parameters to estimate the bit-error rate, while a received signal at the optical receiver 13 is controlled at a maximum quality, or the bit-error rate is controlled at a minimum. As noted by the Office Action, Sato describes each device arranged in a supervisory network, such that the estimation parameters are detected from each device using the supervisory network to control each device automatically. Therefore, the optical transmission system always operates under the optimum condition. A workstation 130 is connected to a transmitter/receiver 110 a repeater 120 to supervise

transmission line to collect the parameters from each device for automatic control of each device via the supervisory network.

Applicants maintain that Sato does not disclose or suggest all of the features of the claimed embodiments. The Office Action concedes that Sato does not disclose comparing the measured bit error with a predetermined system bit error rate threshold, or indicating that the bit error rate from each of the N optical communication channels is less than a specified bit error rate value when the measured bit error rate is less than or equal to the predetermined bit error rate. The Office Action, however, alleges that Sato discloses a range of a system margin related to the bit error rate and that it would be "inherent that one bound would be a predetermined system bit error rate threshold." Further, "it would be inherent to compare the measured system BER with the predetermined system BER threshold." Page 8, line 22 - Page 9, line 2.

Applicants maintain that Sato describes a system that detects parameters, such as the bit-error rate, that are controlled. To rely upon the theory of inherency, the Office Action must provide a basis in fact or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the implied prior art. MPEP 2112. The Office Action does not provide any evidence that

indicating that the bit error rate of the optical communication channels is less than a specified bit error rate value when the measured bit error rate is less than or equal to the predetermined system bit error rate threshold necessarily flows from the system of Sato.

Sato also does not disclose or suggest cascading the N optical communication channels so as to form a continuous cascade of optical transmitters/receiver pairs. Referring to Figure 12 of Sato, transmitter/receiver 110 and the repeater 120 are connected with transmission lines 100a and 100b as optical fibers. Transmitter/receiver 110 is not connected with other components within a continuance cascade. Thus, for at least these reasons, Sato does not disclose or suggest all the features of the claimed embodiments.

Moreover, the Office Action fails to provide any evidence of a motivation to modify Sato to achieve Applicants claimed embodiments. As noted above, Sato describes a system using estimation parameters to control a bit error rate. Sato does not disclose or suggest isolating communication channels to determine which optical communication channel is faulty using a BER test in conjunction with monitoring a signal quality to determine which communication channel is greater/less than a specified bit-error rate value. Thus, the proposed modification would render the prior

art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP 2143.02.

Applicants also maintain that Sato does not disclose or suggest other features of Applicants' claimed embodiments. Specifically, Sato does not disclose monitoring a signal quality for the bit error rate test signal at each of N optical transmitters and N optical receivers when the measured bit rate error rate is greater than the predetermined system bit error rate threshold. The system of Sato does not disclose or suggest monitoring the signal quality after a predetermined condition. Sato uses estimation parameters to control a bit error rate of a signal. Further, as noted above, Sato does not determine which optical communication channel is greater or less than a specified bit error rate value.

The Office Action also alleges that Waschka, Jr., discloses or suggests features missing from Sato. As discussed above, Waschka, Jr., fails to disclose or suggest all the features of claim 1. Thus, the combined patents would not disclose or suggest all the claimed features. The Office Action also alleges that it would have been obvious to modify Waschka, Jr., in view of Sato to determine the location of faults along the transmission line. Applicants disagree.

Sato supervises a system by controlling estimation parameters. Sato does not disclose or suggest isolating faults along transmission lines. In fact, it is unclear to Applicants how the system of Sato would operate in conjunction with Waschka, Jr. The supervisory system of Sato would be adjusting parameters in the bit error rate as the BER detector in the unit data/voice control unit of Waschka, Jr., would be identifying fault in units along the transmission line using those parameters. If the proposed modification or combination of the prior art would change the principal of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims obvious. MPEP 2143.02. Applicants maintain that the combination of the cited patents would change the principal of operations for each patent. Therefore, for at least these reasons, claims 1 and 2 are not rendered obvious by Sato in view of Waschka, Jr. Applicants respectfully request that the obvious rejections of claims 1 and 2 be withdrawn.

The rejections of claim 4 are based upon the rejections of claims 1 and 2. If an independent claim is nonobvious, to any claimed depending there from is nonobvious. MPEP 2143.03. Claim 4 depends from claim 1. Thus, Applicants maintain that the rejection to claim 4 is untenable. Accordingly, Applicants respectfully request that the obviousness rejection of claim 4 be withdrawn.

Appl. No. 09/550,649

Applicants note that no patents or publications were cited against claim 3. As noted above, claim 3 has been amended to overcome an indefiniteness rejection. Thus, Applicants maintain that claim 3 recites allowable subject matter.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact William F. Nixon (Reg. No. 44,267) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment(s): Abstract of the Disclosure

Three (3) replacement drawing sheets

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IN THE ABSTRACT:

Replace the Abstract currently of record with the enclosed new Abstract of the Disclosure.